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FIG. 1

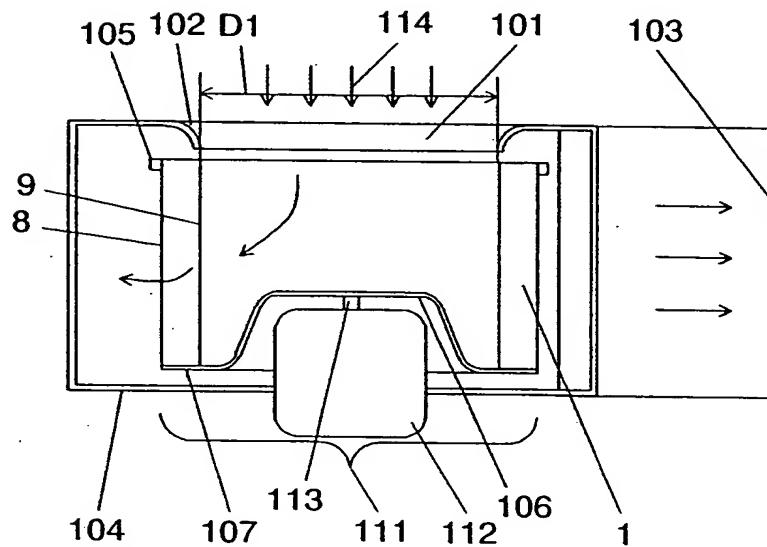
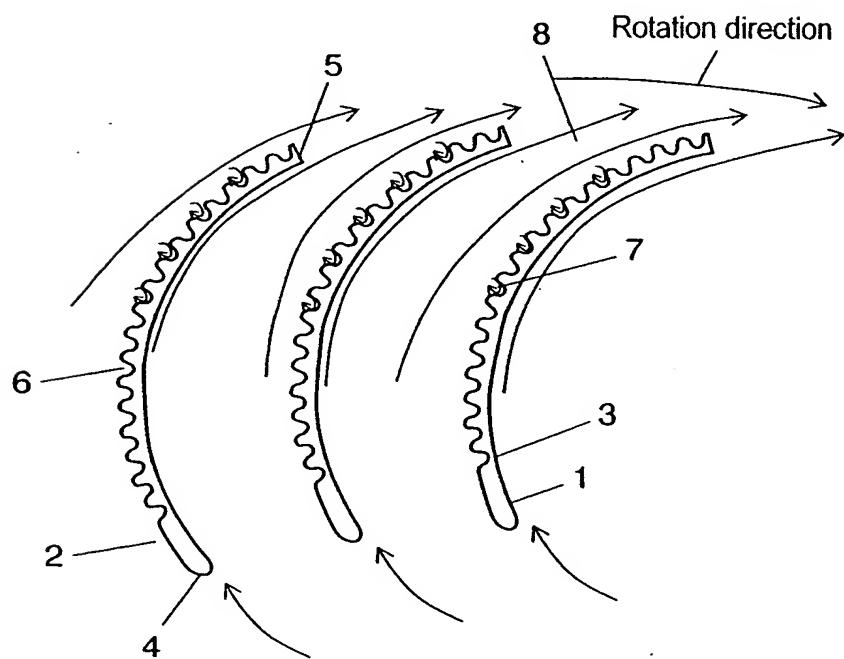


FIG. 2



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FIG. 3

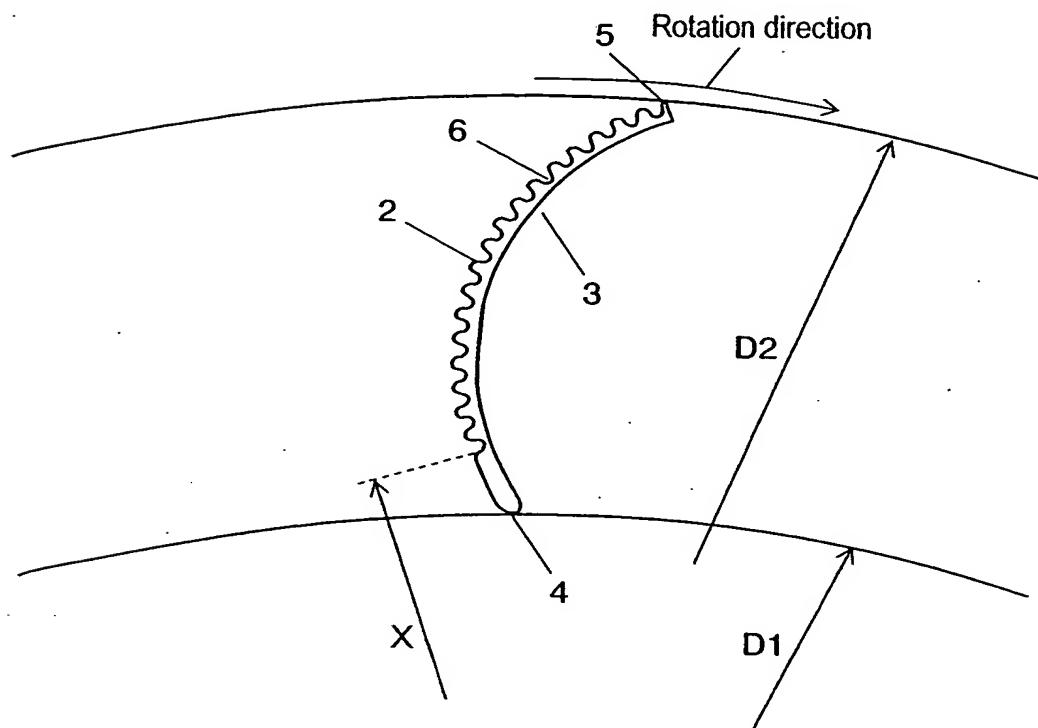


FIG. 4A

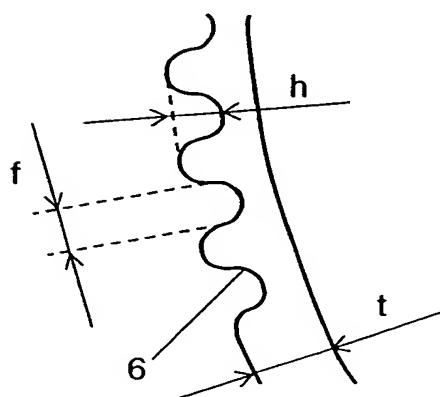
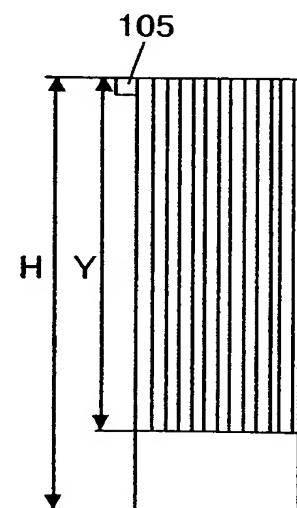


FIG. 4B



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FIG. 5A

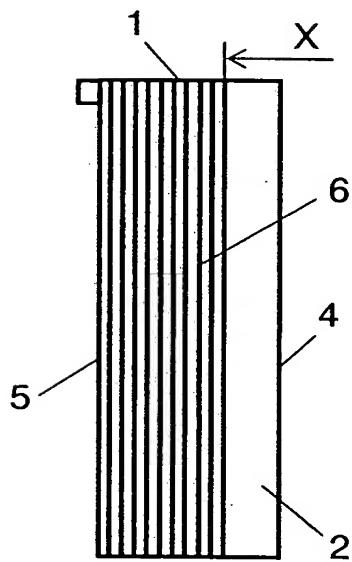
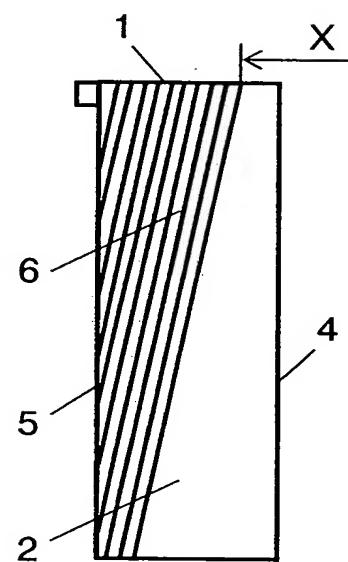


FIG. 5B



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FIG. 6A

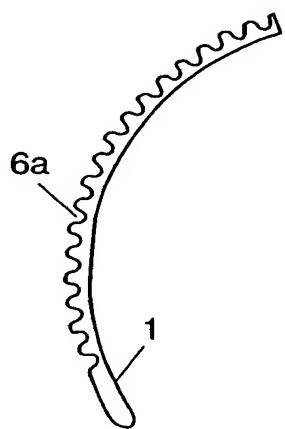


FIG. 6B

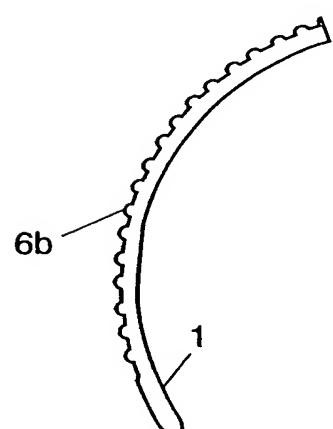


FIG. 6C

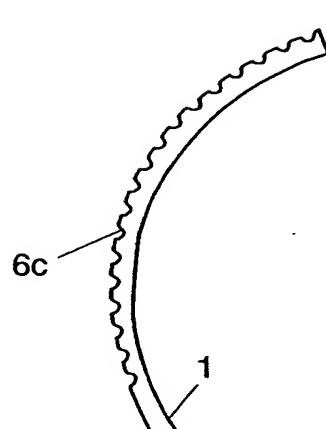


FIG. 6D

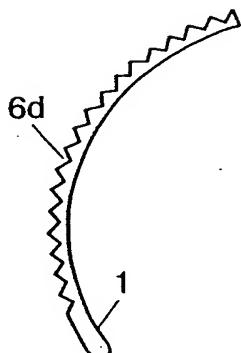


FIG. 6E

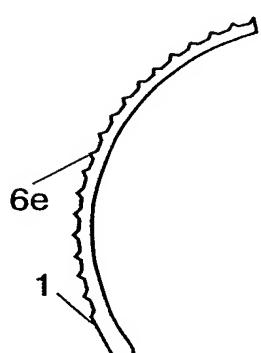


FIG. 6F

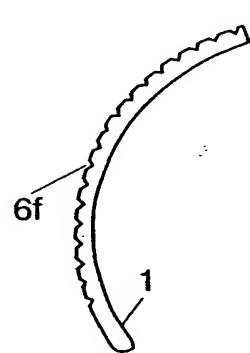
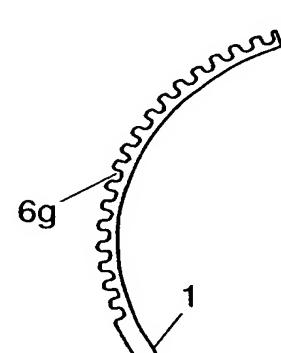


FIG. 6G



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FIG. 7

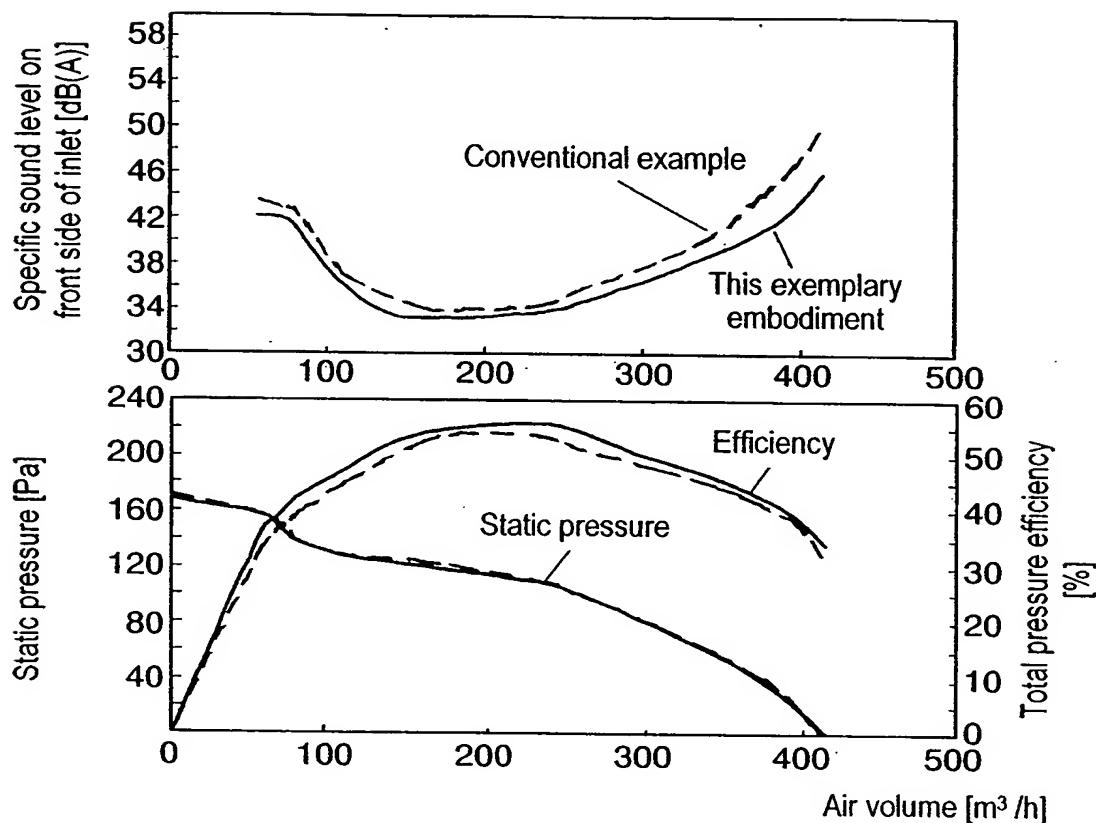
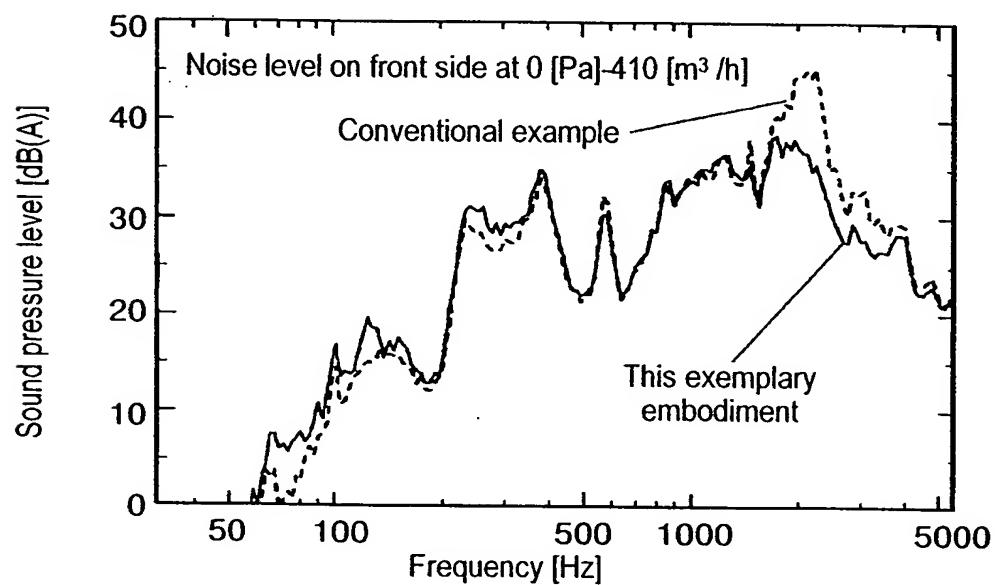


FIG. 8



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FIG. 9

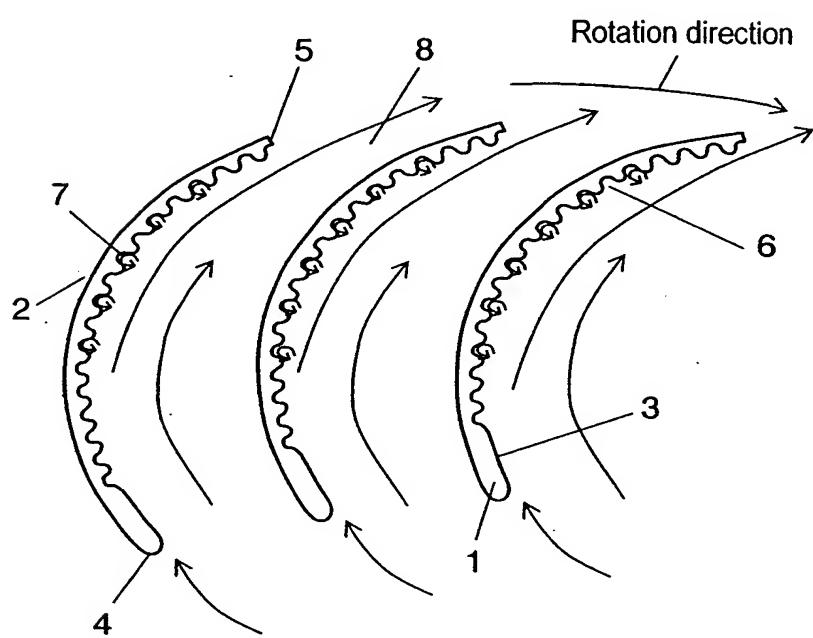
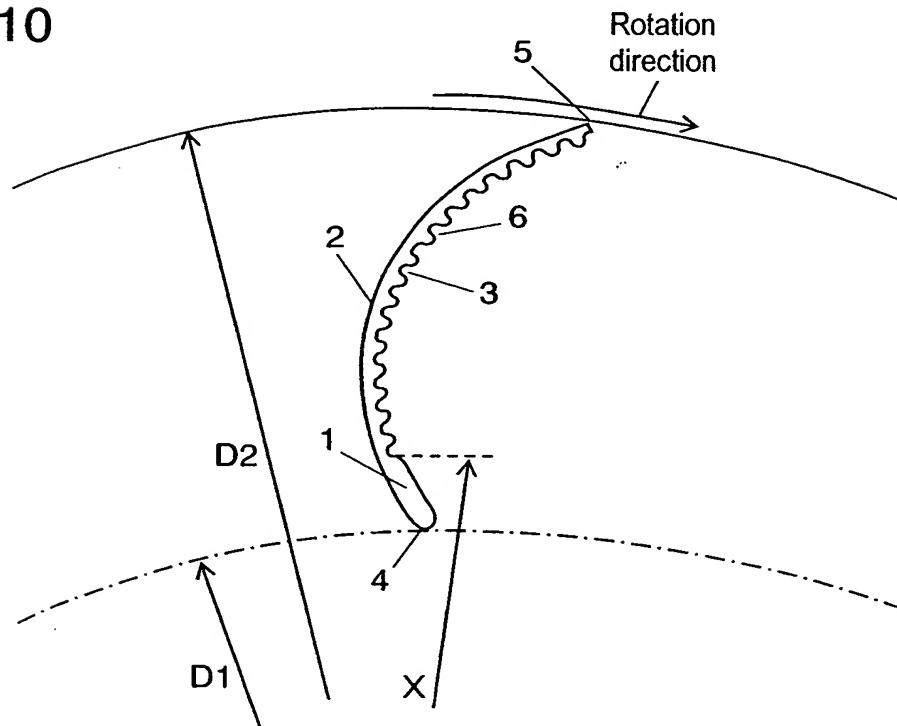


FIG. 10



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FIG. 11A

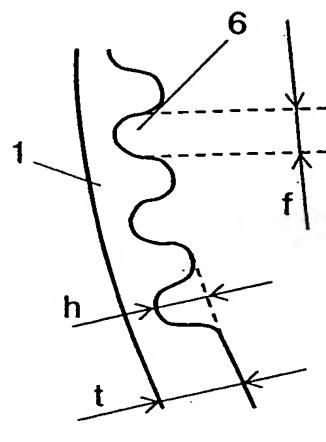


FIG. 11B

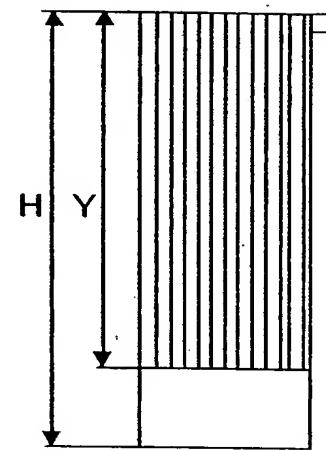


FIG. 12A

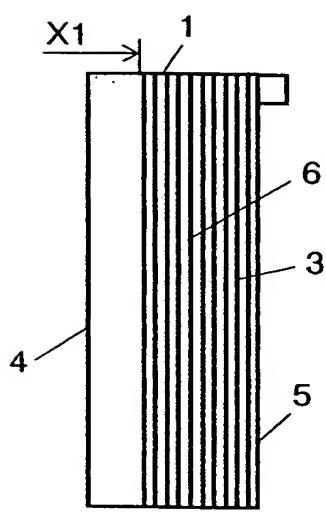
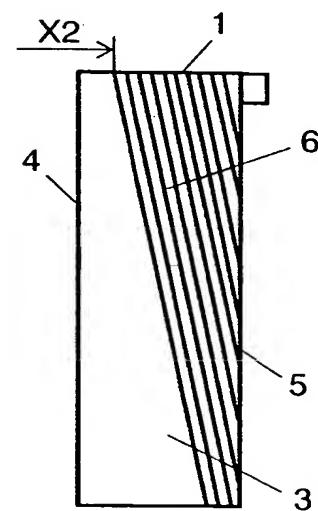


FIG. 12B



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FIG. 13A

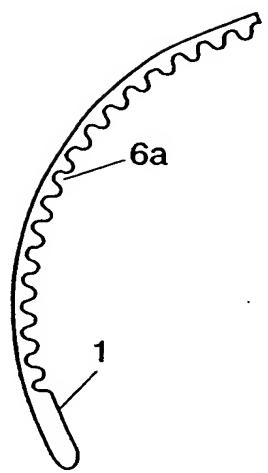


FIG. 13B

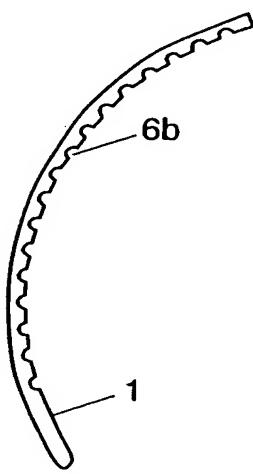


FIG. 13C

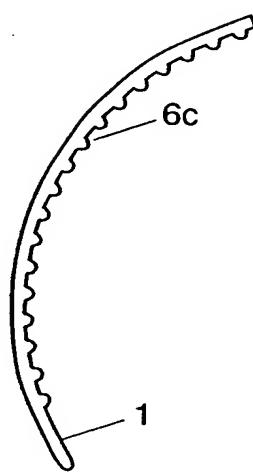


FIG. 13D

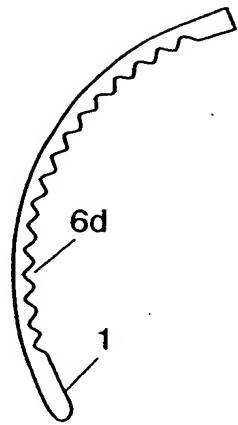


FIG. 13E

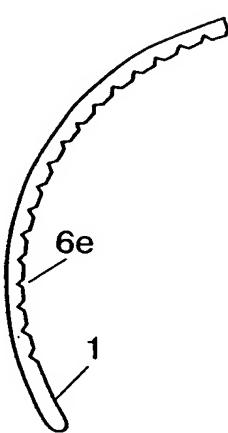


FIG. 13F

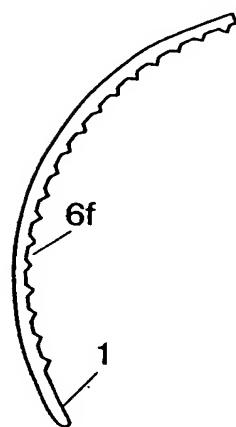
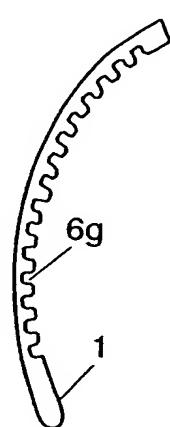


FIG. 13G



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FIG. 14

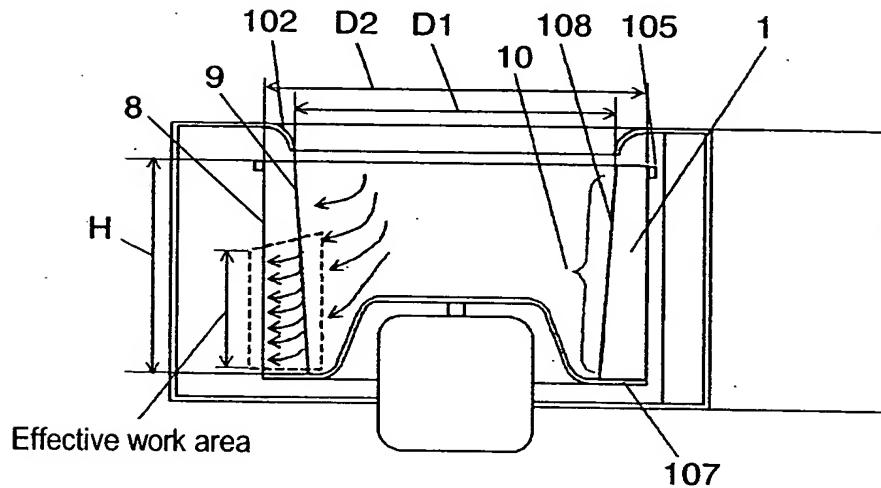
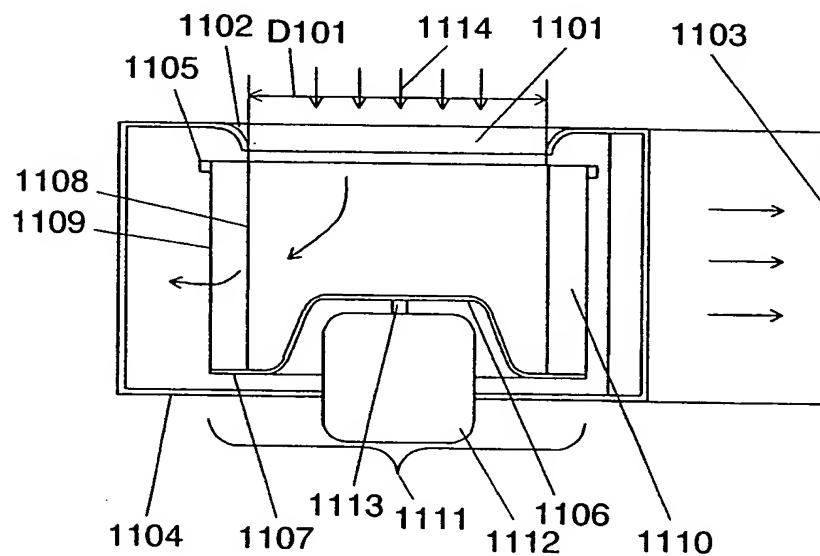


FIG. 15



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FIG. 16

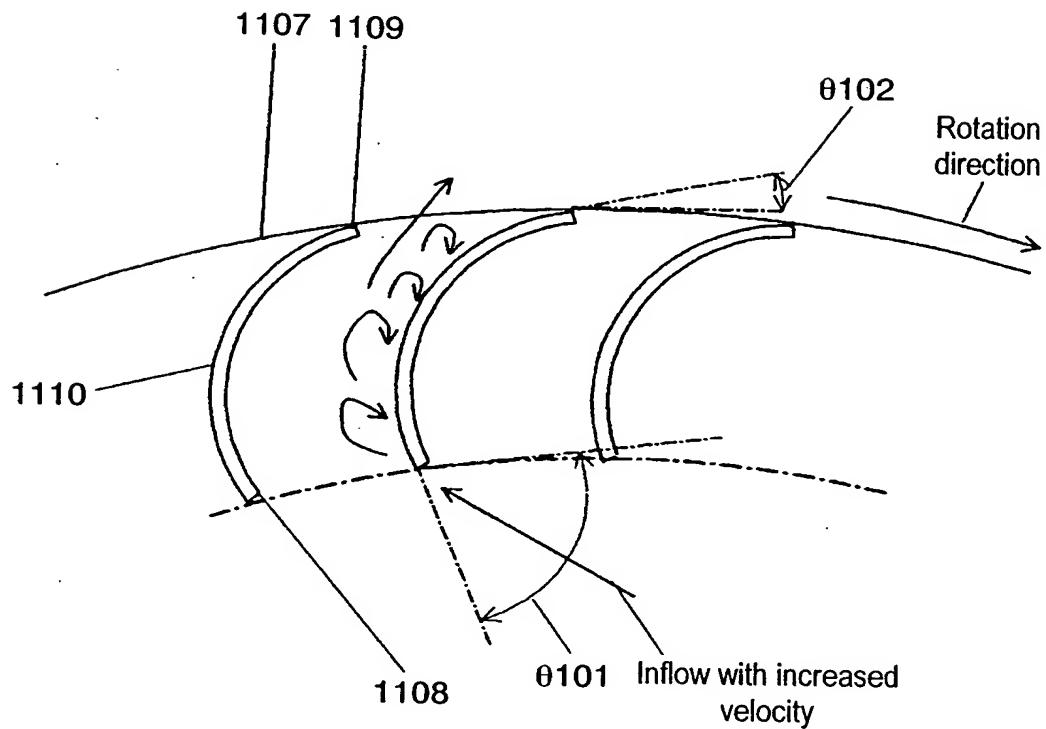
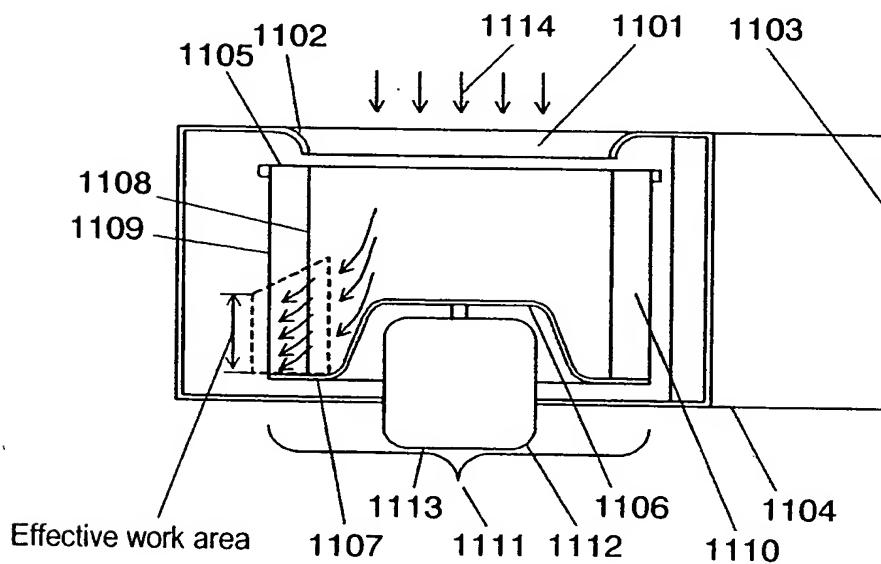


FIG. 17



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FIG. 18

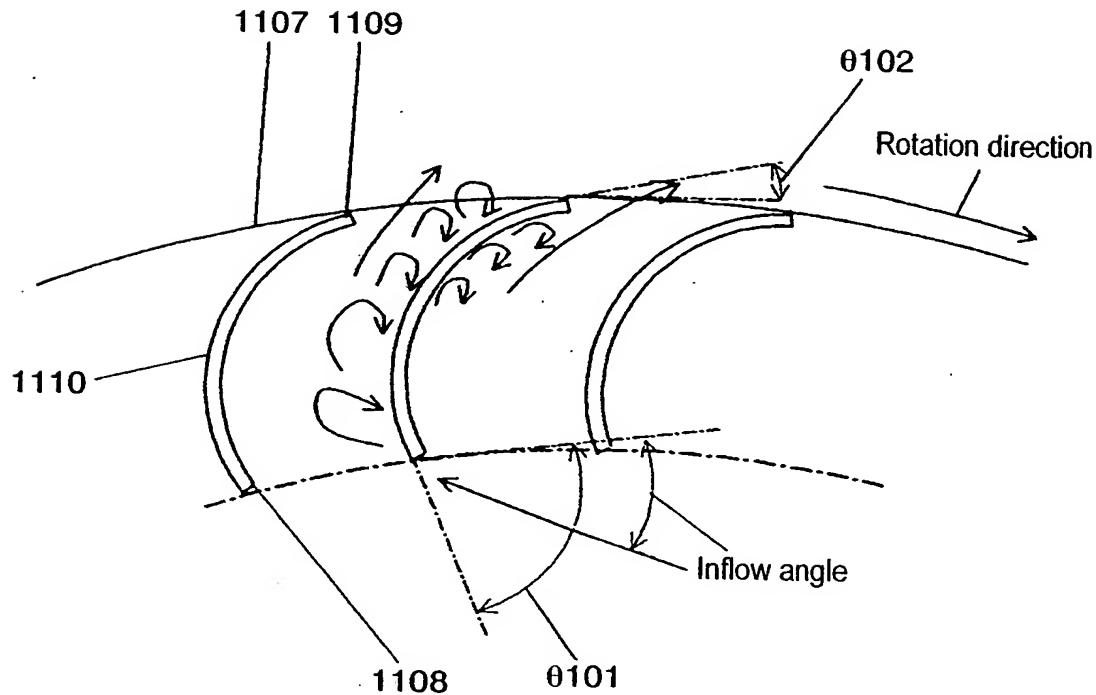
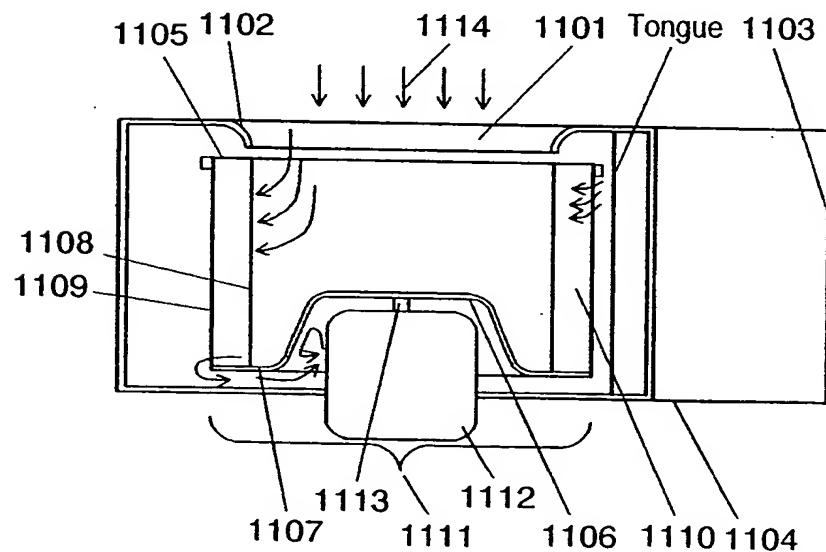


FIG. 19



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FIG. 20

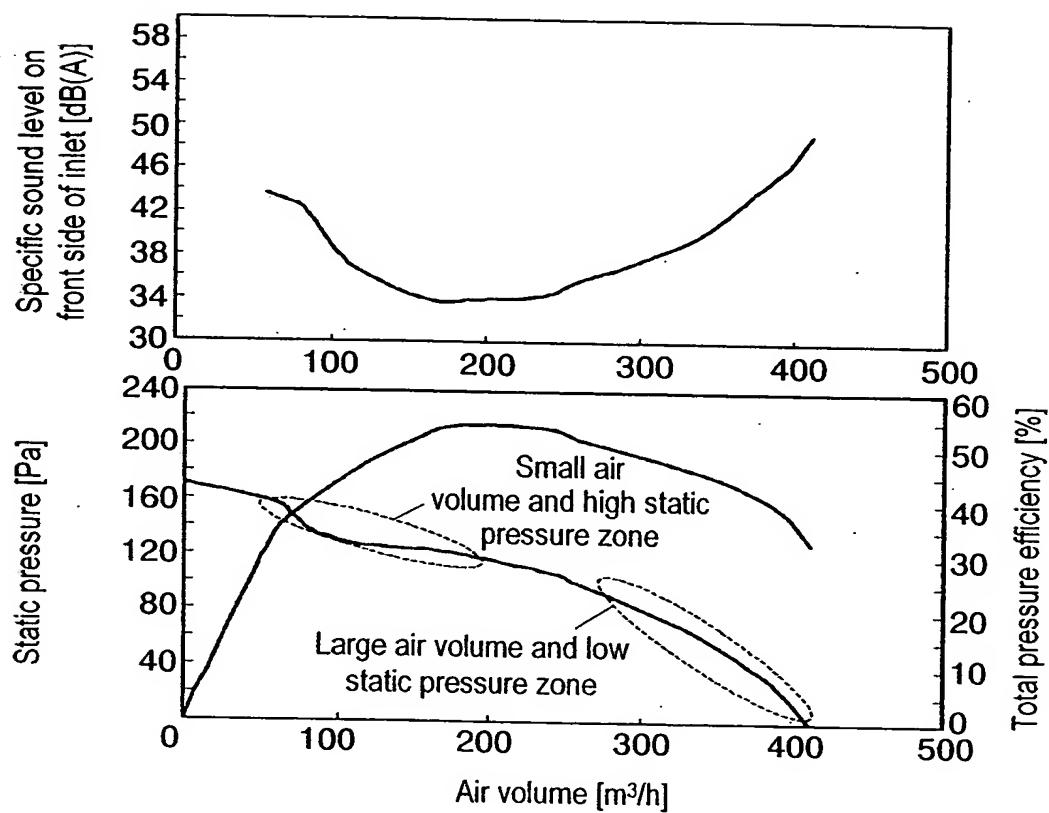
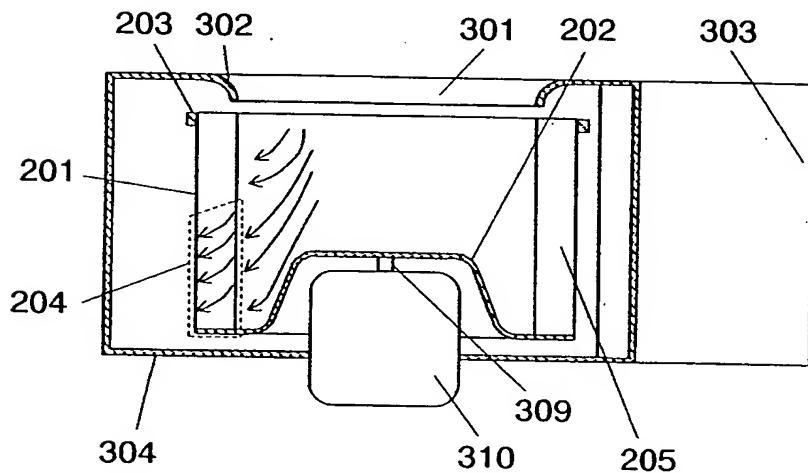
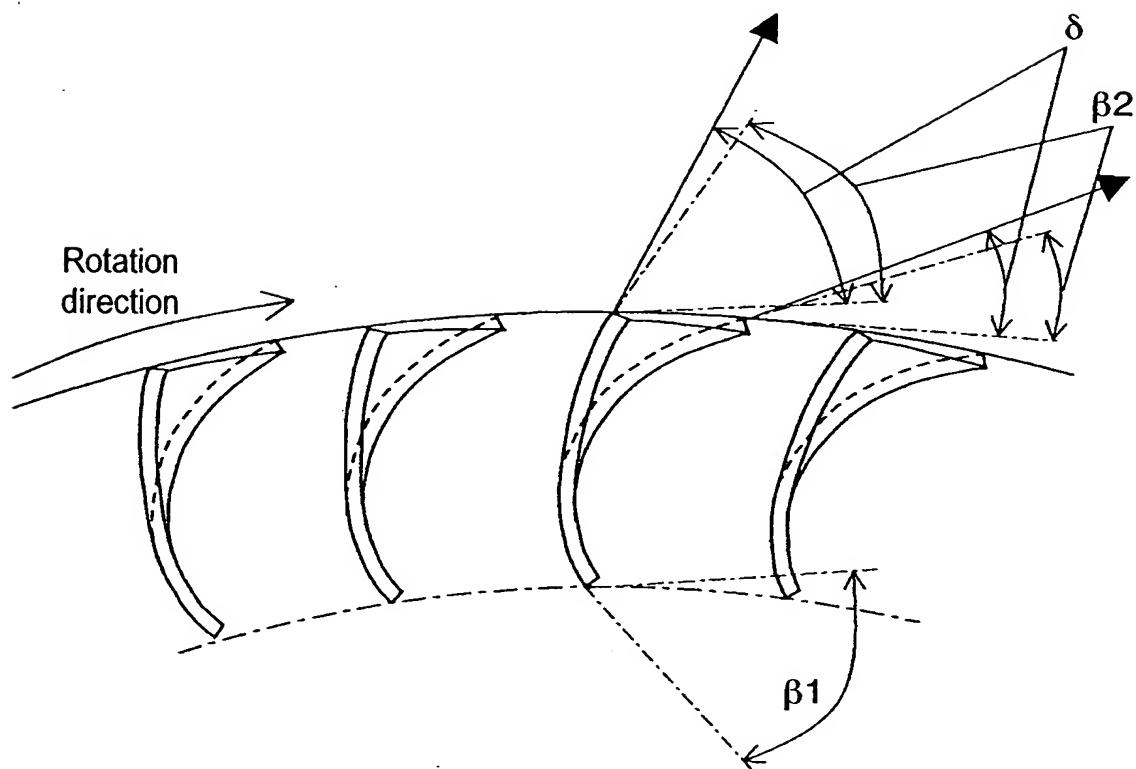


FIG. 21



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FIG. 22



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FIG. 23A

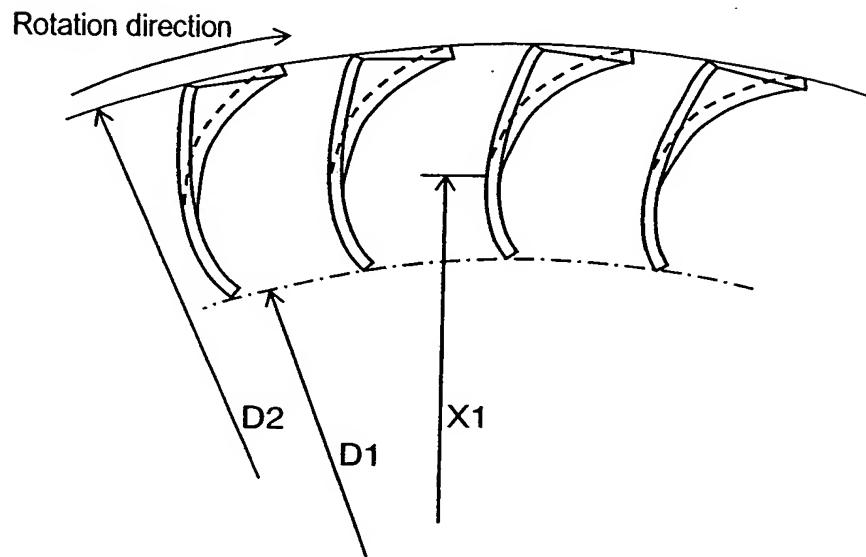
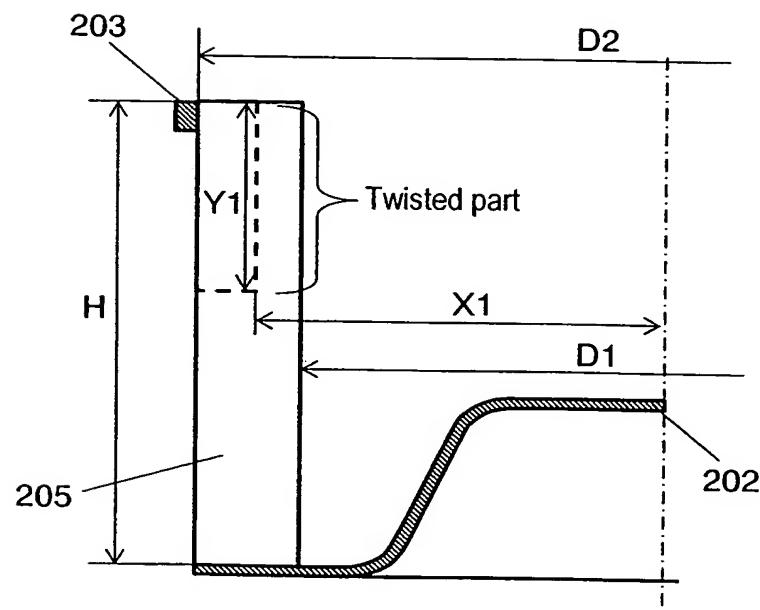


FIG. 23B



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FIG. 24

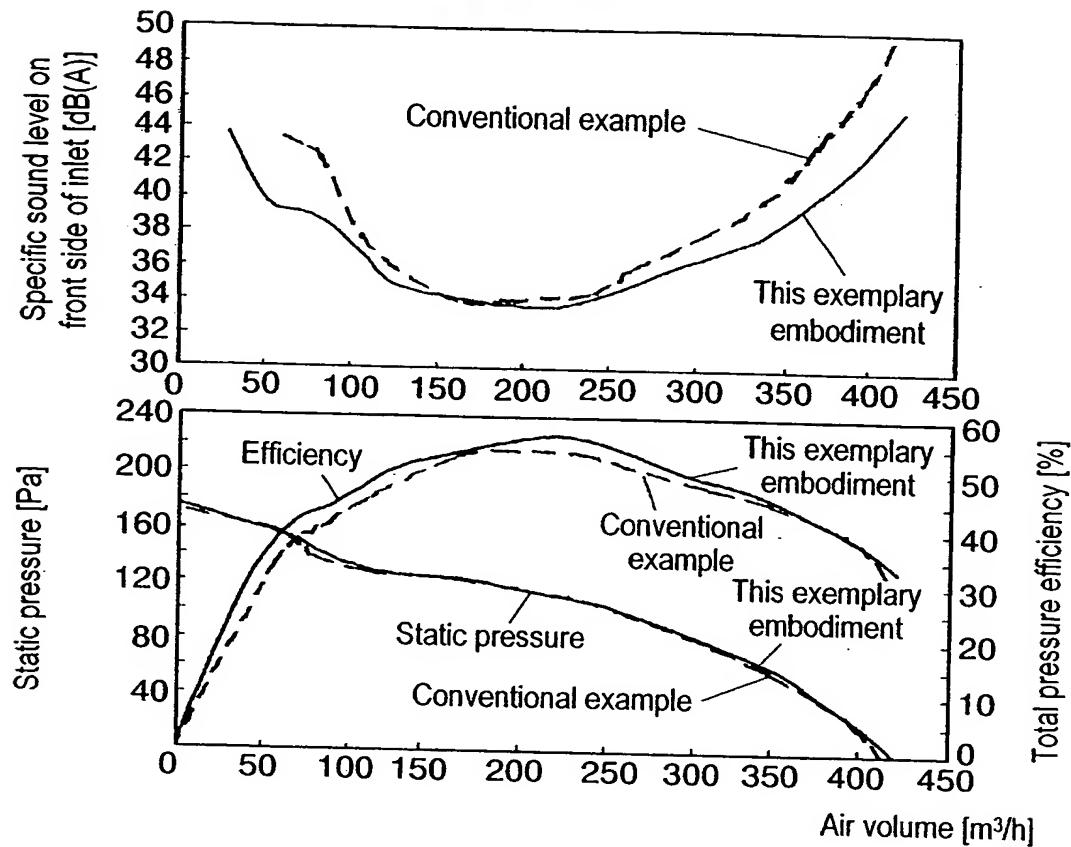
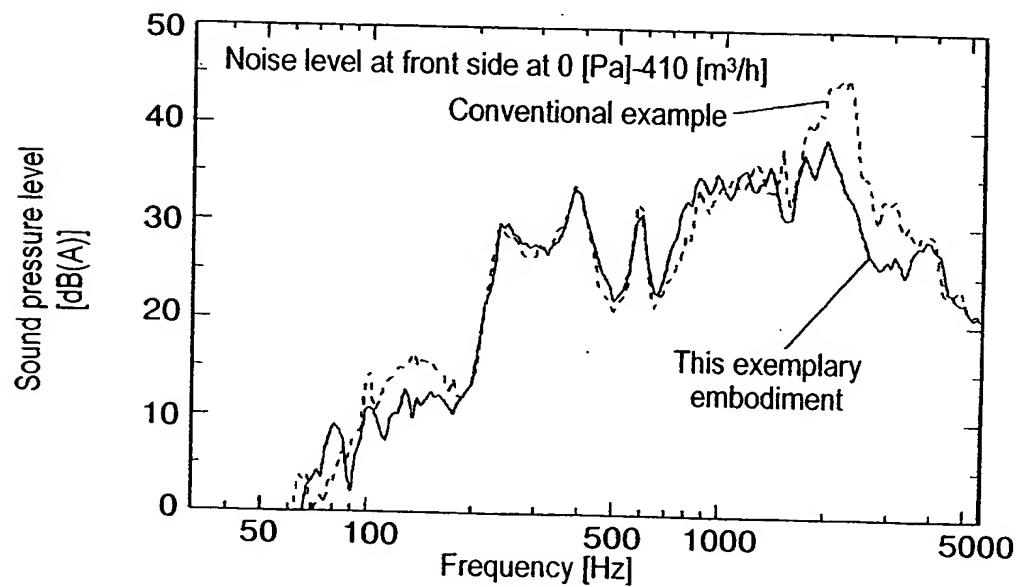


FIG. 25



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FIG. 26

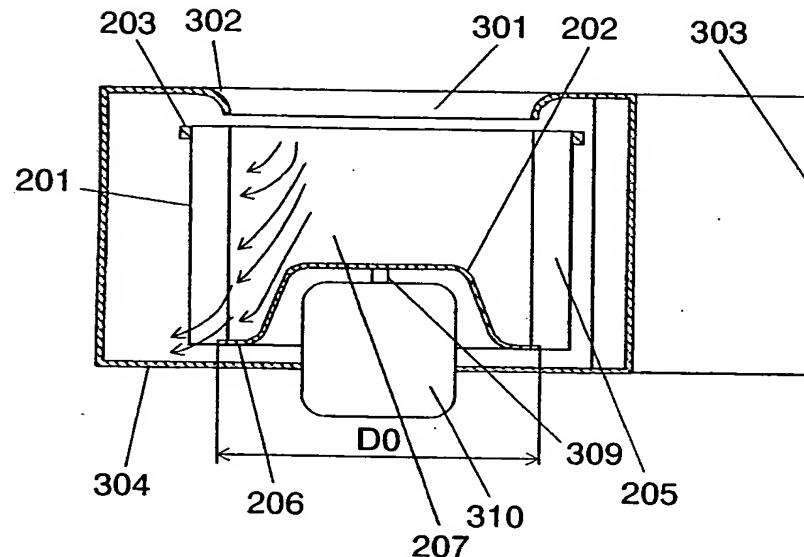
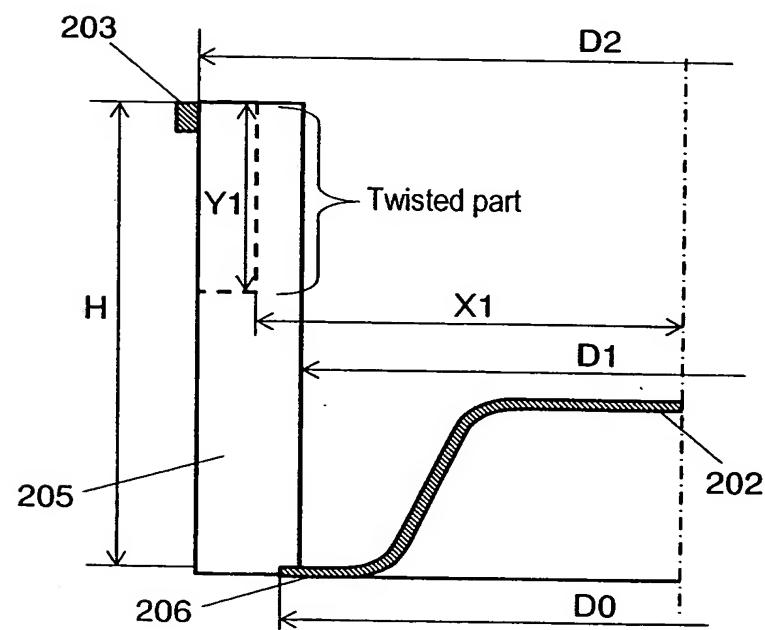


FIG. 27



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FIG. 28

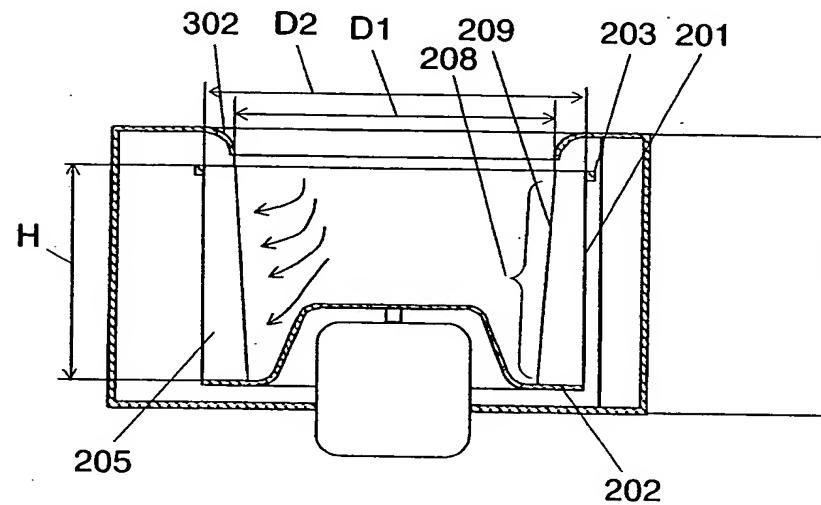
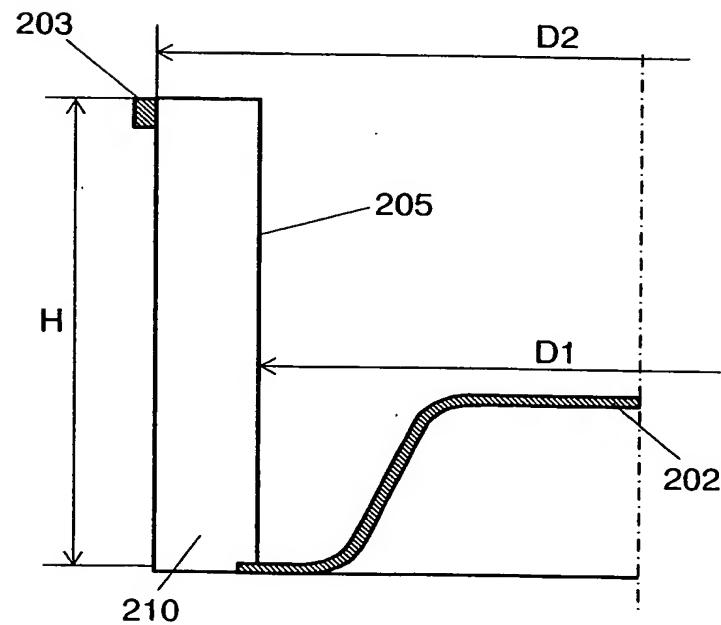


FIG. 29



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FIG. 30

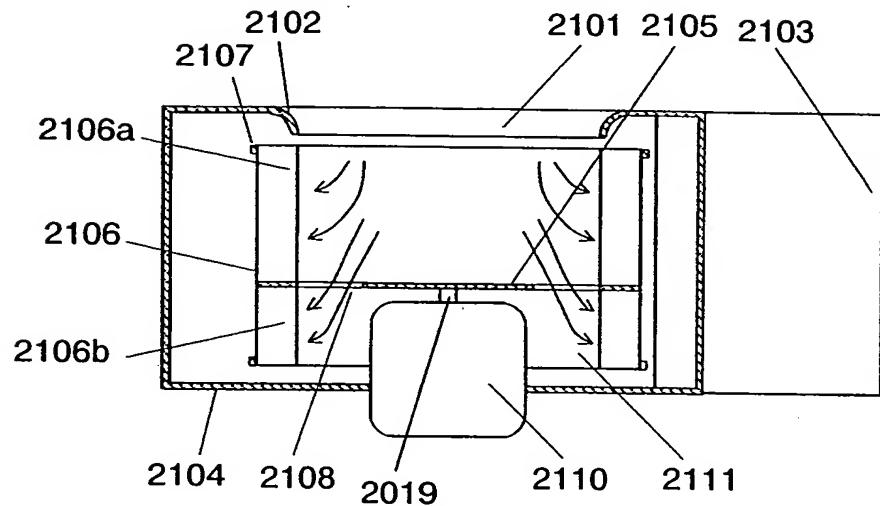
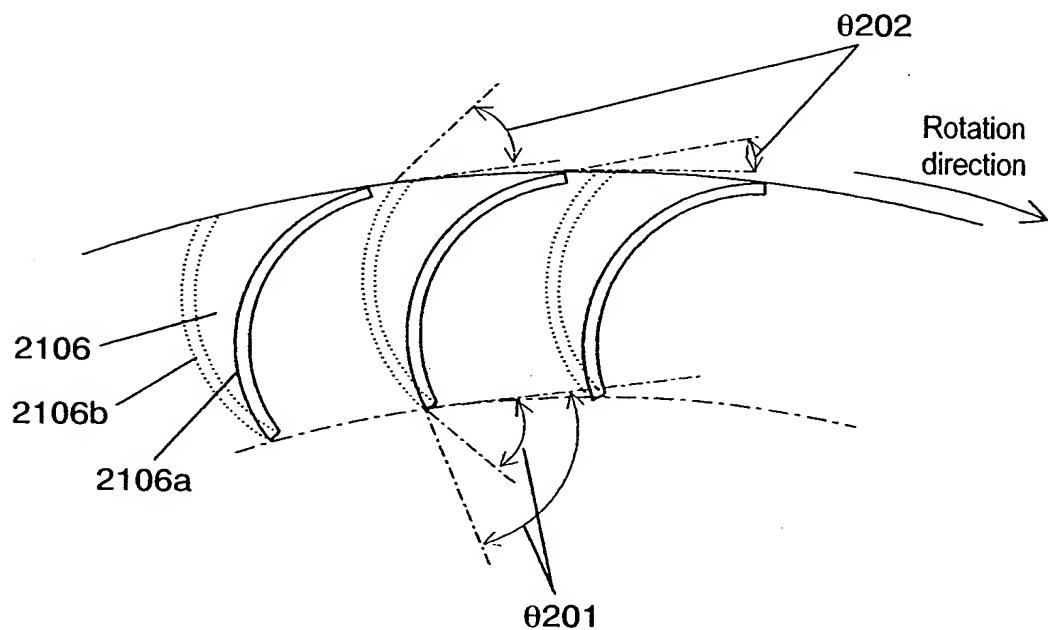
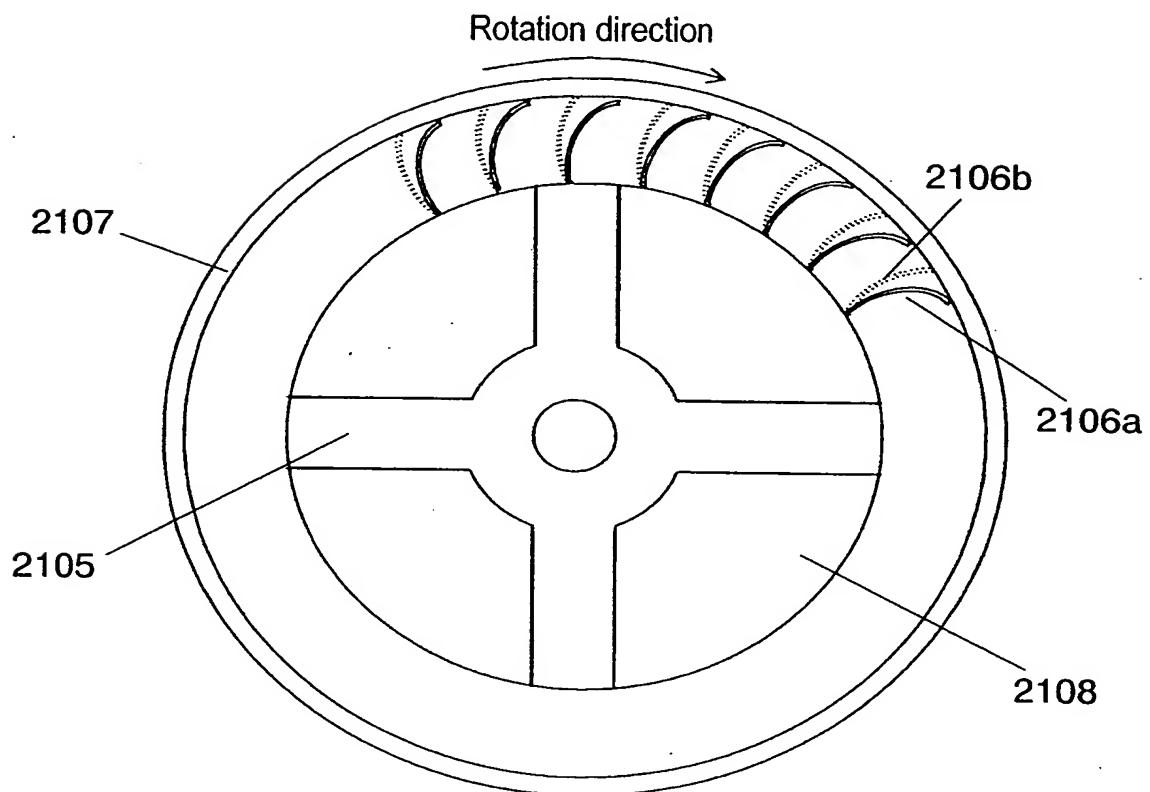


FIG. 31



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FIG. 32



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Reference numerals in the drawings

- 1 Blade
- 2 Dorsal side
- 3 Ventral side
- 4 Front edge
- 5 Rear edge
- 6 Asperities
- 7 Eddy
- 8 Blade outlet
- 9 Blade inlet
- 10 Tapered shape
- X Distance between start point of asperities and rotation axis
- f Length of recess
- h Depth of recess
- t Board thickness of blade
- H Height of blade
- Y Distance of asperities in direction of rotation axis
- 101 Inlet
- D1 Internal diameter of fan
- D2 External diameter of fan
- 102 Orifice
- 103 Discharge outlet
- 104 Casing
- 105 Lateral plate
- 106 Throttle
- 107 Main plate
- 108 Blade inlet
- θ1 Inlet angle
- 109 Blade outlet
- θ2 Outlet angle
- 110 Blade
- 111 Centrifugal fan
- 112 Motor
- 113 Shaft
- 14 Inhaled air
- 201 Blade outlet

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- 202 Main plate
- 203 Lateral plate
- 204 Mainstream range
- 205 Blade
- 206 End surface at opposite side of lateral plate
- 207 Centrifugal fan
- 208 Tapered shape
- 209 Blade inlet
- 210 Dorsal blade side
- $\beta_1$  Inlet angle
- $\beta_2$  Outlet angle
- $\delta$  Discharge angle
- D1 Internal diameter of fan
- D2 External diameter of fan
- X1 Distance between start position of twisting and rotation axis
- H Height of blade
- Y1 Distance of start position of twisting from lateral plate in axial direction
- 301 Inlet
- 302 Orifice
- 303 Discharge outlet
- 304 Casing
- 309 Shaft
- $\theta_2$  Outlet angle
- 310 Motor